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Contribution of Agricultural Exports to the Economic Growth in Tanzania from 1984 to 2023

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KEYWORS

Agricultural Exports, Economic Growth, Vector Auto-regressive Model (VAR), Labor Force, Gross capital

ABSTRACT

This study investigates the short-term contribution of agricultural exports to Tanzania's economic growth from 1984 to 2023 using annual time series data and a Vector Autoregressive (VAR) model. The present study aims to fill the empirical gap identified by examining the dynamic short-term relationship between agricultural exports and economic growth. The results reveal that agricultural exports are the most significant driver of GDP growth, with a 1% increase leading to a combined GDP growth of approximately 0.71% after periods two and three, indicating a delayed but substantial positive effect. Granger causality tests further confirm a unidirectional causal relationship from agricultural exports to economic growth, highlighting their key role in driving GDP. The labour force also positively influences growth, whereas gross capital formation exhibits a negative short-term impact. These findings align with the Export-Led Growth (ELG) theory, emphasising that exports stimulate foreign exchange earnings, investment, and productivity. Based on these results, the study recommends that the government prioritise policies promoting agricultural exports, including incentives for value addition, diversification of export crops, and improved access to international markets. Strengthening infrastructure, improving market access, providing technical support to farmers and agribusinesses, and facilitating trade through streamlined customs procedures can further enhance export competitiveness. Additionally, policies should focus on improving labour productivity through education, skills development, and inclusive participation in export-related activities. Implementing these measures is crucial for achieving the government's target of raising agricultural export value to USD 5 billion by 2030.

1. Introduction

Agriculture has long been the backbone of Tanzania's economy, serving as a key driver of GDP growth, employment creation, industrial raw materials supply, export revenue, and food security (FAO, 2020). It remains the largest economic sector in the country (Walla & Minja, 2025), largely because the majority of Tanzanians live in rural areas and depend on farming for their livelihoods. According to the 2022 Population and Housing Census in the United Republic of Tanzania, approximately 65.6 % of the population living on the mainland resides in rural areas, while in Zanzibar, about 51.0 % of the population lives in rural areas (NBS, 2023). As of 2023, approximately 62.6 % of the population of Tanzania lives in rural areas (Global Economy, 2023). The sector contributes approximately 29.1% to GDP, employs 65.5% of the labour force, provides 65% of raw materials for industries, and generates 30% of export earnings (URT, 2017). Its contribution to employment has remained consistent, with agriculture engaging about 65% of Tanzania's workforce in 2022 (TICGL, 2025). In 2023 alone, the sector created over 1,084,000 new permanent and temporary jobs through various agricultural initiatives and development programs.

Agricultural exports have played a vital role in driving economic growth, reflecting the sector's importance to Tanzania's macroeconomic stability and development. In 2023, Tanzania's GDP stood at USD 79 billion, with agriculture contributing USD 4.11 billion, equivalent to 25.3% (TICGL, 2025). This performance positioned Tanzania's agricultural GDP as the second largest in East Africa after Ethiopia (USD 6.45 billion), while the country ranked ninth in Africa in terms of nominal GDP, behind Nigeria (USD 252 billion) and Côte d'Ivoire (USD 86 billion) (TICGL, 2025). The sector's growth trajectory has shown steady improvement, rising from 2.6% in 2021 to 4.2% in 2023. Nonetheless, the government aims to accelerate this growth to 10% by 2030 (TMA, 2025).

Despite these positive trends, the agricultural sector has faced intermittent challenges. The growth of agricultural GDP declined slightly from 4.9% in 2021 to 4.7% in 2022, primarily due to increased production costs driven by global shocks such as the Russia–Ukraine conflict and the adverse impacts of climate change (URT, 2023; Walla & Minja, 2025). Globally, the impact of such trade shocks on agricultural exports varies across countries depending on their level of integration into international markets and value chains (Koppenberg et al., 2021).

With agricultural exports, its value increased significantly from USD 1.2 billion in 2019/2020 to USD 3.54 billion in 2023/2024, marking a remarkable 195% growth within a period of four years. This

impressive performance demonstrates the growing importance of agriculture as a key driver of Tanzania's export sector and economic transformation agenda. During the same period, the country's total exports reached USD 16.1 billion in 2024, with agriculture contributing about 20% of the total export value, equivalent to approximately USD 3.22 billion annually over the past five years. The consistent increase reflects improved production, diversification of export crops, and deliberate government efforts to promote value addition, market access, and competitiveness in international markets. In alignment with the country's development vision and agricultural transformation strategy, the Government of Tanzania has set an ambitious target to further raise the value of agricultural exports from USD 1.2 billion to USD 5 billion by 2030 (TMA, 2025).

Agricultural exports are vital for economic growth as they generate foreign exchange, stimulate industries, and boost rural incomes. Various studies across different economies consistently confirm this positive linkage. Recent empirical evidence from Tanzania underscores the crucial role of agricultural exports in driving economic performance. For instance, Lyimo and Losaru (2022) found that exports of major cash crops such as coffee, cotton, and tea have a strong positive impact on the country's GDP, highlighting their contribution to overall growth. In support, Vedasto (2025) reported that agricultural exports positively influence Tanzania's economic performance, sustaining growth momentum. Likewise, Sendalo (2023) demonstrated that removing barriers to agricultural exports, particularly in accessing European markets, enhances foreign exchange earnings and promotes economic expansion. Complementarily, Mbowe et al. (2025) observed that the horticulture subsector increasingly contributes to export revenues and holds substantial potential to boost GDP if infrastructural and policy challenges are addressed.

Beyond Tanzania, similar findings emerge across developing economies, reaffirming the universal growth-enhancing role of agricultural exports. For example, Bakari and Tiba (2022) assert that agricultural exports act as a powerful engine for economic growth by increasing foreign exchange earnings, stimulating industrialisation, and promoting overall development. Consistently, Gizaw (2022) found that coffee exports significantly enhance Ethiopia's economic growth, while Osabohien and Iqbal (2022) revealed that agricultural trade fosters inclusive growth in West Africa. In a broader context, El Weriemmi et al. (2024) demonstrated that agricultural exports promote GDP growth in upper-middle-income countries through capital accumulation and productivity gains. Similarly, Moyo and Sibanda (2024) confirmed a positive relationship between agricultural exports and economic growth in South Africa. In the same vein, Adeabah and Asongu (2024) explicitly reported that in Nigeria, a 1% increase

in agricultural exports contributes to approximately a 25% rise in GDP, underscoring the transformative potential of agricultural trade for economic development.

Although several studies, such as those by Lyimo and Losaru (2022), Vedasto (2025), Sendalo (2023), and Mbowe et al. (2025) have demonstrated that agricultural exports positively influence Tanzania's economic performance, most of them have focused on specific agricultural subsectors or assessed only long-term relationships. Hence, there remains limited empirical evidence addressing the short-run transmission mechanisms between agricultural exports and economic growth. It then became the interest of this study to investigate the exact short-term contribution of agricultural exports to Tanzania's economic growth from 1984 to 2023 using the Vector Autoregressive (VAR) model. Accordingly, the main objective of this study is to examine the short-run dynamics between agricultural exports and Tanzania's economic growth. Based on this objective, the central research question guiding the study is: to what extent do agricultural exports contribute to Tanzania's economic growth in the short run? This study, therefore, fills this gap by empirically analysing the short-term dynamic relationship between agricultural exports and economic growth and provides policy-relevant insights to support the government's ambition of increasing agricultural export value.

Through the conceptual framework, the current study illustrates the relationship between agricultural exports as the independent variable and economic growth, the dependent variable. It also accounts for the influence of control variables, which are the labour force and gross capital formation, as can be shown in Figure 1.

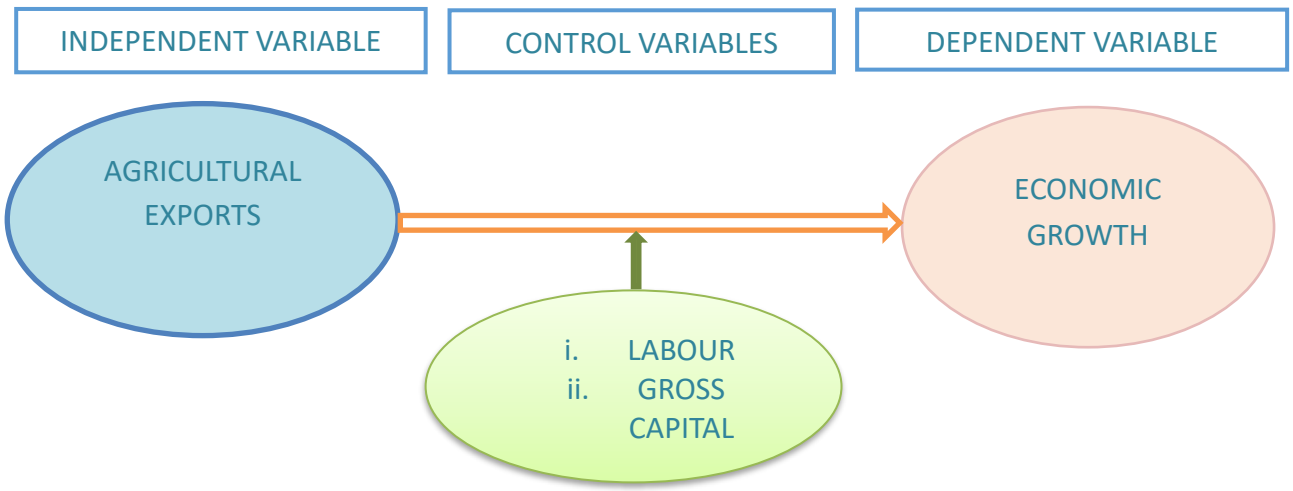

Figure 1: Conceptual Framework
Source: Researcher (2025)

The current study is guided by the Export-Led Growth (ELG) theory since it aligns closely with its principles. According to ELG theory, exports serve as a key engine of economic growth by generating foreign exchange, increasing production incentives, and stimulating investment in both capital and labour-intensive sectors. By empirically analysing how agricultural exports impact Tanzania's GDP, this study tests the central premise of ELG that expanding export performance can drive sustainable growth. The inclusion of labour and capital as control variables further reflects the theory's emphasis on complementary factors, recognising that the growth-enhancing effects of exports are amplified when human and physical capital contribute to production capacity. Thus, the study not only evaluates the direct contribution of agricultural exports to economic growth but also situates the findings within the theoretical framework of ELG, providing evidence on how Tanzania can leverage its agricultural sector to achieve long-term economic development.

The novel contribution of this study lies in its comprehensive analysis of the relationship between overall agricultural exports and economic growth in Tanzania, incorporating labour force and gross capital formation as control variables. By examining short-run effects within the ELG framework, the study provides empirical evidence and policy insights on how agricultural exports can drive sustainable economic development and support the government's goal of increasing export value to USD 5 billion by 2030.

2.0 Methodology

2.1 Data Source and Data Type

The study employs a quantitative research design aimed at examining the contribution of agricultural exports to Tanzania's economic growth. It utilises annual time series data spanning the period from 1984 to 2023, obtained from the World Bank database. The selected variables include economic growth, proxied by Gross Domestic Product (GDP), agricultural exports, gross capital formation, and the labour force. The variables were adopted from various studies that investigate similar topics, including Lyimo and Losaru (2022), Osabohien and Iqbal (2022), Weriemmi et al. (2024) and Mbowe et al. (2025).

2.2 Measurement of Variables

Clearly defining and measuring each variable is essential for ensuring consistency, comparability, and accuracy of the econometric analysis. The variables selected, economic growth, agricultural exports, gross capital formation, and labour force, are grounded in economic theory and empirical literature that link export performance with growth dynamics. Each variable is operationalised using reliable secondary

data sources and expressed in appropriate forms to facilitate meaningful interpretation, as presented in Table 1.

Table 1: Measurement of variables

Variable Name	Definition	Data Type	Data Source	Coverage	Unit of Measurement
GDPGrowth	GDP growth (annual %)	Numeric	The World Bank	1984-2023	Percentage
GrosCapital	Gross Capital formation (% of GDP)	Numeric	The World Bank	1984-2023	Percentage
LabourForce	The labour force total	Numeric	The World Bank	1984-2023	Count
AgricExport	Agricultural exports (% of merchandise exports)	Numeric	The World Bank	1984-2023	Percentage

Source: Authors' (2025)

2.3 Unit Root Test

The study tested for the unit root as the concept is important in time series analysis because many statistical methods require the data to be stationary to make reliable predictions. The Augmented Dickey-Fuller (ADF) test was used to check the stationarity of time series variables. The method was preferred over others because it provides more reliable results in the presence of serial correlation by including lagged differences of the dependent variable. Unlike the simple Dickey-Fuller test, the ADF test adjusts for higher-order autocorrelation, making it suitable for complex time series data. It is also widely accepted for its stable critical values and high statistical power across different sample sizes, making it a robust and dependable method for testing stationarity in econometric studies.

2.4 Model Residual Diagnostic Tests

The study employed a series of residual diagnostic tests to verify the reliability, adequacy, and stability of the estimated model. Specifically, the Cumby-Huizinga test was used to detect the presence of serial correlation in the residuals, ensuring that the model's error terms were independent across time, a key requirement for unbiased and efficient parameter estimates. The Breusch-Pagan test was applied to check for heteroskedasticity, that is, whether the variance of the residuals was constant across observations; detecting and correcting for heteroskedasticity helps improve the robustness of the standard errors and the overall validity of statistical inferences. Lastly, the Jarque-Bera test was used to examine the normality of the residuals, which is important for confirming that the model assumptions underlying hypothesis testing and confidence interval construction are satisfied. Together, these diagnostic tests ensure that the model results are statistically sound and provide a reliable basis for interpreting the findings of the study.

2.5 Lag Length Selection

Selecting an appropriate lag length is a crucial step in time series analysis, as it determines the optimal number of lagged terms to include in the regression model for accurate estimation. In this study, the optimal lag length was determined using the information criteria (IC) approach, which involves comparing model performance based on several statistical measures. Specifically, the Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC), and Hannan-Quinn Information Criterion (HQIC) were employed to guide the selection process. By applying these criteria, the study ensured the identification of an optimal lag structure that effectively captured the dynamic relationships among the independent variables, thereby enhancing the robustness and reliability of the model's estimates.

2.6 Co-integration Test

The Johansen co-integration test was used to determine whether a long-run stable relationship exists among the variables or not. The method was chosen for its suitability in multivariate models and its unique capability to detect more than one co-integrating relationship within the dataset. The Johansen co-integration test provides two test statistics: the Trace statistic and the Maximum Eigenvalue statistic. The existence of cointegration is detected by comparing the calculated test statistics with their corresponding critical values; if the test statistic exceeds the critical value at a chosen significance level, it indicates the presence of a long-run cointegrating relationship among the variables.

2.7 Estimation Techniques

The study employed the Vector Auto-Regressive (VAR) model as an appropriate technique. VAR is suitable when variables are stationary but not co-integrated, allowing the modelling of short-run dynamics and interdependencies among variables. This model treats all variables in the system as endogenous, enabling each variable to be expressed as a linear function of its own lagged values and the lagged values of all other variables, thereby capturing the mutual influence and feedback effects within the system. However, the main focus of the study was only to examine the relationship between economic growth and agricultural exports.

The general formula for a Vector Autoregressive (VAR) model of order p (denoted as VAR(p)0 is:

$$Y_t = c + A_1 Y_{t-1} + A_2 Y_{t-2} + \cdots + A_p Y_{t-p} + \varepsilon_t \quad \text{.......} \quad (1)$$

Where:

$Y_t = ak \times 1$ vector of endogenous variables at time t

$c = ak \times 1$ vector of intercept terms (constants)

$A_1, A_2, \cdots, A_p = k \times k$ coefficient matrices showing the relationships among the variables across different lags

$\varepsilon_t = ak \times 1$ vector of error terms (white noise)

In simpler terms, each variable in the model is expressed as a linear function of its own past values and the past values of all variables in the system.

2.8 Granger Causality Test

The study also conducted a Granger causality test to examine the direction of causality between economic growth and agricultural exports. This test was employed to determine whether past values of agricultural exports help predict changes in economic growth, or vice versa. By analysing the causal link, the study aimed to establish whether agricultural exports serve as a driver of economic growth or if economic expansion stimulates export performance. The results of the Granger causality test were aimed to provide valuable insights into the dynamic interactions between the two variables, complementing the findings from the VAR model.

Mathematical equation.

For two time series variables X_t and Y_t, the test is based on the following pair of regression equations:

$$Y_t = \alpha_0 + \sum_{i=1}^{p} \alpha_1 Y_{t-1} + \sum_{j-1}^{p} \beta_j X_{t-j} + \varepsilon_t \dots\dots\dots\dots\dots\dots\dots\dots (2)$$

$$X_t = \gamma_o + \sum_{i=1}^{p} \gamma_1 X_{t-1} + \sum_{j-1}^{p} \delta_j y_{t-j} + \mu_t \dots\dots\dots\dots\dots\dots\dots\dots (3)$$

Where:

P = number of lags,

ε_t = error terms (white noise)

Decision rule:

X Granger-cause Y if the coefficients β_j (for all j) are jointly statistically significant (i.e, $\beta_j \neq 0$)

Similarly, Y Granger-cause X if the coefficients δ_j are jointly significant.

The significance is tested using an F-test (or Wald test) to compare the restricted model (without lagged X and the unrestricted model (with lagged X).

2.9 Model Specification

A Vector Auto-regressive (VAR) Model, as an appropriate technique for analysing short-run dynamic relationships between multiple time series variables, follows several steps. The first one was the formulation of the functional form, which is presented as;

$$GDPgrowth_t = F(\text{AgricExport, GrossCapital, and LabourForce}) \dots\dots\dots (4)$$

Equation (1) was then transformed into Linear regression form.

$$\text{GDPgrowth}_t = \beta_0 + \beta_1 \text{AgricExport}_t + \beta_2 \text{GrossCapital}_t + \beta_3 \text{LabourForce}_t + \varepsilon_t \dots\dots\dots (5)$$

The linear regression form was again transformed into a log-linear form expressed in natural logarithm (ln) form to make the model linear for easy estimation and interpretation as:

$$\text{LnGDPgrowth}_t = \ln A_t + \beta_1 \ln\text{AgricExport}_t + \beta_2 \ln\text{GrossCapital}_t + \beta_3 \ln\text{LabourForce}_t + \varepsilon_t \dots\dots\dots (6)$$

The expected sign of estimators is $\beta i > 0$ …………………………………………..…………..……. (7)

Higher agricultural exports are expected to positively affect economic growth

Where:

$\ln GDPGrowth_t$= GDP growth (annual %) in natural logarithm form

A_t = is the measure of Total Factor Productivity (TFP)

$LnGrossCapital_t$ = Gross capital formation (% of GDP) in natural logarithm form

$LnLabourforce_t$ = Labour force in natural logarithm form

$LnAgricExport_t$ = Agricultural exports (% of merchandise exports) in natural logarithm form

α = Constant/intercept term, β_1, β_2, β_3 = Coefficients showing the impact of each variable, and

ε_t= Error term.

3. Results Presentation and Discussion

3.1 Results Presentation

3.1.1 Descriptive Statistics

The findings provided descriptive statistics for four study variables. Descriptive analysis was performed to summarise and understand the basic characteristics and distributional properties of the data before applying econometric techniques. This step helped in identifying patterns, trends, and potential outliers in the dataset, as well as assessing the central tendency, variability, and overall behaviour of each variable. Such preliminary analysis ensured that the data were well-understood and suitable for subsequent empirical modelling and interpretation.

According to the results in Table 2, GDP growth averaged 5.06% with a peak of 7.67% and exhibited moderate variability, as reflected by a coefficient of variation (CV) of 0.38, which indicates generally stable economic performance over the study period. In contrast, agricultural exports showed the highest volatility among the variables, with a CV of 0.60 and a wide range from 1.25% to 23.09%, highlighting substantial fluctuations in export performance. Meanwhile, gross capital formation remained relatively stable, averaging 27.58% and reaching a maximum of 41.07%, with a CV of 0.33, suggesting consistent investment levels throughout the period. Similarly, the labour force demonstrated the lowest variability, with a CV of 0.26 and a steady increase from 12.2 million to 32 million people, reflecting gradual expansion in productive capacity. Overall, the CV analysis indicates that, while agricultural exports were

the most volatile component, GDP growth, gross capital formation, and the labour force remained relatively stable. Furthermore, skewness and kurtosis suggest that the data generally exhibit mild asymmetry and approximate normality, except for agricultural exports, which display pronounced right skewness (2.13) and high kurtosis (5.55), reflecting occasional extreme values and heightened volatility. Taken together, these results show that the dataset is mostly well-behaved, with volatility concentrated primarily in the agricultural export sector.

Table 2: Descriptive statistics of variables

	GDPGrowth	**AgricExport**	**Gross Capital**	**Labor Force**
Mean	5.06	7.35	27.58	20,300,000
Std. de**v.**	1.94	4.42	9.01	5,173,475
CV	0.38	0.60	0.33	0.26
Median	5.36	7.35	27.577	20,300,000
Minimum	0.58	1.25	10.26	12,200,000
Maximum	7.67	23.09	41.067	32,000,000
Skewness	-0. 73	2.13	-0.185	0.46
Kurtosis	2.62	5.55	1.824	2.55

Source: Author's Computation from Stata (2025)

3.1.2 Unit Root Test

The Augmented Dickey-Fuller (ADF) test results revealed that all variables, GDP growth, gross capital formation, agricultural exports, and labour force, were non-stationary at their level form, indicating the presence of a unit root and thus requiring first differencing to achieve stationarity. The test was conducted under the null hypothesis that a variable has a unit root (non-stationary) against the alternative hypothesis that it is stationary. At the level form, the null hypothesis could not be rejected since the p-values were extremely greater than 0.05, confirming non-stationarity. However, after first differencing, the p-values for all variables fell below the 0.05 significance level, leading to the rejection of the null hypothesis. This confirmed that all variables became stationary after first differencing, as summarised in Table 3 below.

Table 3: Unit root test results for variables in levels and first difference

Variable Name	At level			At first difference		
	Test Statistic	Critical Values (5%)	P-value	Test Statistic	Critical Values (5%)	P-value
LnDPGrowth	-2.800	-2.964	0.0582	-4.703	-2.966	0.0001
LnGrosCapital	-0.974	-2.964	0.7627	-3.705	-2.966	0.0001
LnAgricExport	-1.407	-2.964	0.5789	-7.008	-2.966	0.0000
LnLabouForce	-0.237	-2.964	0.9340	-3.965	-2.966	0.0016

Source: Authors' Computation from Stata (2025)

3.1.3 Diagnostic Tests

The diagnostic tests were conducted to ensure the adequacy and statistical fitness of the model. As shown in Table 4, the Cumby-Huizinga test indicated no serial correlation, with a p-value of 0.1092, which is greater than the 0.05 significance level, leading to a failure to reject the null hypothesis of no autocorrelation. The Breusch-Pagan test for heteroskedasticity also suggested no issues, as the p-value of 0.7686 exceeded 0.05, resulting in the non-rejection of the null hypothesis of constant variance. Additionally, the Jarque-Bera test showed that the residuals were normally distributed, with a p-value of 0.0685 above the 0.05 threshold. These results collectively indicate that the model's error terms are independent, homoscedastic, and normally distributed, satisfying the key assumptions required for reliable regression analysis.

Table 4: Diagnostic test results

Type of test	Chi-square	P-value	Remark
Serial Correlation	2.565	0.1092	No serial correlation
Heteroskedasticity Test	0.9	0.7686	No heteroskedasticity
Normality Test	5.362	0.0685	Normally distributed

Source: Authors' Computation from STATA (2025)

3.1.4 Lag Selection

Selecting an appropriate lag length in time series analysis is crucial to avoid model misspecification and ensure reliable results. Optimal lags help capture potential time delays between the independent and dependent variables. As shown in Table 5, both the Akaike Information Criterion (AIC) and the Hannan-Quinn Information Criterion (HQIC) identified lag 3, while the Schwarz Bayesian Information Criterion (SBIC) suggested lag 1. Lag 3 being identified by the majority makes it the preferred choice and was generally considered more reliable for achieving the best model fit.

Table 5: Lag selection results

Lag order	AIC	HQIC	SBIC
0	2.209	2.27036	2.38675
1	-0.815324	-0.50852	0 .073447*
2	-0.602192	-0.049946	0.997594
3	-1.74106*	-0.943369*	0.569745
4	-1.64792	-0.604785	1.3739

Source: Authors' Computation from STATA (2025)

3.1.5 Co-integration Test

The Johansen co-integration test was conducted to examine the existence of a long-run relationship among the variables. According to the test's decision rule, the null hypothesis of no co-integration is rejected if the computed Trace statistic exceeds the critical value. As shown in Table 6, the Trace statistic of 40.78 is lower than the critical value of 47.21 at the 5% significance level. Results indicate that there is insufficient evidence to reject the null hypothesis. Therefore, results suggest that there is no co-integration among the variables, meaning that no stable long-run relationship exists between them.

Table 6: Johansen co-integration test results

Hypothesised No. of CE(s)	Eigen Value	Trace Statistics	Critical Value (5%)
None*	.	40.7781*	47.21
At most 1	0.36890	23.7473	29.68
At most 2	0.32030	9.4613	15.41
At most 3	0.22524	0.0187	3.76
At most 4	0.00051		

Source: Authors' Computation from Stata (2025)

3.1.6 Vector Auto-regressive (VAR) Model

Before estimating the model, the Augmented Dickey-Fuller test confirmed that all variables were stationary at the first difference. Again, the Johansen co-integration test revealed that there is no co-integration among variables. The results of the two tests suggested the use of VAR as the best estimation technique since the said are the required conditions. After estimation, Table 7 shows that a 1% increase in agricultural exports leads to a GDP growth of approximately 0.35% after two periods and 0.36% after three periods, reflecting a delayed but positive impact. A 1% increase in gross capital formation has a small and mostly insignificant short-run effect, with a marginal negative impact of –0.61% at lag 2, indicating limited influence on current GDP growth. The counter-intuitive findings of capital formation in the short run is due to that, increased capital formation may reduce GDP as resources are shifted away from immediate consumption toward investment projects with delayed returns. Moreover, financing these investments can dampen aggregate demand through higher taxes, borrowing, or capital imports before productivity gains emerge. For the labour force, a 1% increase raises GDP growth by 1.24% at lag 1 (marginally significant) and 4.34% at lag 2 (highly significant), showing that labour expansion strongly drives economic growth with a short delay. Meanwhile, past GDP growth negatively affects current growth, where a 1% increase in GDP in the previous period reduces current GDP by 0.48% at lag 1 and 0.28% at lag 3, demonstrating self-correcting short-run dynamics in the economy.

Table 7: Vector Auto-Regressive results

Variables	Coefficient.	Std. error	P-value
lnGDPGrowth_L1	-0.48	0.15	0.00
lnGDPGrowth _L2	-0.06	1. 11	0.59
lnGDPGrowth _L3	-0.28	0.09	0.00
lnAgricExport_L1	0 .02	0.12	0.88
lnAgricExport _L2	0.35	0 .15	0.01
LnAgricxport _L3	0.36	0 .16	0.02
lnGrossCapital_L1	-0.53	0.35	0.13
lnGrossCapita_L2	-0.61	0.35	0.08
lnGrossCapita_L3	0 .28	0.35	0.42
lnLaborForce_L1	1.24	0 .68	0.07
lnLaborForce_L2	4.34	0.69	0.00
lnLaborForce_L3	-0.49	0 .78	0.53

Source: Authors' Computation from STATA (2025)

3.1.7 Granger Causality Test

Based on the p-values, the Granger causality test results presented in Table 8 show a unidirectional relationship from agricultural exports to economic growth. The p-value for the hypothesis that agricultural exports do not Granger-cause GDP growth is 0.032, below the 0.05 significance level, leading to rejection of the null. In contrast, the p-value for the hypothesis that GDP growth does not Granger-cause agricultural exports is 0.97, well above 0.05, so the null cannot be rejected. These results confirm that agricultural exports drive economic growth, while GDP growth does not predict export performance, aligning with the VAR model findings that indicated significant positive effects of agricultural exports on GDP growth with lagged impacts.

Table 8: Granger causality test results

Null Hypothesis:	Chi-2	df	P-value	Conclusion
lnAgricExport does not Granger-cause lnGDPgrowth	8.8083	3	0.032	Reject the null hypothesis
lnGDPgrowth does not Granger-cause lnAgriExport	0.243	3	0.970	Fail to reject the null hypothesis

Source: Authors' Computation from Stata (2025)

3.2 Discussion of Findings

The findings of this study support the theoretical expectations of the Export-Led Growth (ELG) theory, which posits that exports are a key driver of economic growth by generating foreign exchange, stimulating investment, and promoting productivity. As shown in Table 7, a 1% increase in agricultural exports leads to a combined GDP growth of approximately 0.71% after two and three periods, reflecting a delayed but positive impact. This empirical evidence aligns with the ELG theory, which anticipates that increased export performance positively influences domestic output over time. These results are consistent with recent empirical studies in Tanzania. For instance, Lyimo and Losaru (2022) found that exports of major cash crops such as coffee, cotton, and tea significantly enhance GDP, while Vedasto (2025) reported that agricultural exports positively influence Tanzania's overall economic performance. Similarly, Sendalo (2023) demonstrated that removing barriers to agricultural exports, particularly in accessing European markets, enhances foreign exchange earnings and promotes broader economic

growth, and Mbowe et al. (2025) highlighted the increasing contribution of the horticulture subsector to export revenues and GDP growth potential.

In comparison, studies from other developing countries, such as Gizaw (2022) in Ethiopia, Osabohien and Iqbal (2022) in West Africa, El Weriemmi (2024) in upper-middle-income countries, and Moyo and Sibanda (2024) in South Africa, similarly documented positive contributions of agricultural exports to economic growth. Although the impact in Tanzania is smaller than in Nigeria, where Adeabah and Asongu (2024) reported that a 1% increase in exports drives approximately 25% GDP growth, the effect remains meaningful, illustrating that context-specific factors influence the magnitude of the export-growth linkage. Overall, the positive effect of agricultural exports on Tanzania's economic growth underscores the ELG theory, highlighting those policies promoting export expansion, sectoral productivity, and efficient labour utilisation are essential for achieving sustainable economic development.

4. Conclusion and Recommendations

4. 1 Conclusion

The study concludes that agricultural exports and the labour force are key drivers of Tanzania's economic growth during the period 1984–2023. Their influence is more pronounced in the short run, where they contribute directly to economic expansion. In contrast, gross capital formation shows a limited immediate effect, suggesting that its contribution may emerge more strongly over time. Past GDP growth also demonstrates a self-correcting effect, helping to stabilise current performance. These findings are consistent with the Export-Led Growth (ELG) theory, which posits that export expansion enhances economic performance. By confirming that agricultural exports positively and significantly influence economic growth, the study successfully answers the central research question. It demonstrates that the export sector is a vital engine for Tanzania's sustainable economic development.

4.2 Recommendations

First, the government should prioritise policies that promote agricultural exports, including incentives for value addition, diversification of export crops, and access to international markets. Strengthening infrastructure, improving market access, and providing technical support to farmers and agribusinesses can enhance the competitiveness of Tanzania's agricultural products, thereby sustaining their positive contribution to economic growth. Trade facilitation measures, such as reducing export barriers and streamlining customs procedures, would further support the sector's expansion.

Second, policies should focus on enhancing labour productivity and utilisation, given the significant positive influence of the labour force on GDP growth. Investment in education, skills development, and vocational training tailored to the agricultural and export sectors can improve labour efficiency and support economic development. Additionally, promoting employment in productive sectors and ensuring inclusive participation in export-related activities can strengthen the short-run and long-term growth effects of labour on the economy.

Since there is no single research that can answer all the questions, future studies could explore the sectoral composition and value chain effects of agricultural exports on economic growth in Tanzania. While this study focused on aggregate agricultural exports, examining specific crops, regional contributions, and the role of processing and value addition could provide deeper insights into which sub-sectors most effectively drive growth. Additionally, investigating the interaction between exports, investment, and technological adoption would help identify strategies for maximising the growth impact of the agricultural sector.

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